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THE EFFECT OF VARIOUS INFORMATION FORMATS ON DECISIONS TO SELECT TEACHERS.

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THIS RESEARCH PROJECT WAS UNDERTAKEN TO DETERMINE THE EFFECTS OF FOUR VARIABLES ON TEACHER SELECTION DECISIONS IN RELATION TO THE CONSISTENCY OF THE DECISIONS, THE FINENESS OF THE DISCRIMINATIONS MADE, THE TIME NEEDED TO MAKE THE DECISIONS, AND THE CONFIDENCE THAT THE DECISIONMAKER HAD IN HIS DECISIONS. THE FOUR VARIABLES WERE (1) AMOUNT OF INSTRUCTION PROVIDED IN HOW TO PROCESS INFORMATION, (2) NUMBER OF WRITTEN DOCUMENTS PRESENTED, (3) DEGREE OF MASKING OF INFORMATION, AND (4) INTERVIEW INFORMATION. THE EXPERIMENT WAS CONDUCTED IN A SIMULATED SITUATION USING 144 PRINCIPALS FROM THREE COUNTIES IN WASHINGTON AS SUBJECTS. EACH SUBJECT EXAMINED EIGHT FICTITIOUS APPLICANTS FOR A HYPOTHETICAL TEACHING POSITION AND MADE DECISIONS REGARDING THE APPROPRIATENESS OF EACH APPLICANT FOR THE POSITION. THE RESULTS OF THE STUDY SHOWED THAT--(1) INSTRUCTION REDUCED THE AMOUNT OF TIME IT TOOK TO MAKE DECISIONS, (2) THE SINGLE DOCUMENT REDUCED THE TIME IT TOOK TO MAKE DECISIONS AND INCREASED THE AMOUNT OF DISCRIMINATION IN MAKING ESTIMATES ON THE TEACHER EVALUATION INSTRUMENT, (3) THE DEGREE OF MASKING OF INFORMATION REDUCED THE ADDITIONAL INTERVIEW INFORMATION, INCREASED THE TIME NEEDED TO MAKE DECISIONS, INCREASED THE DISCRIMINATION ON ESTIMATING CONSEQUENCES ON THE TEACHER EVALUATION INSTRUMENT, AND INCREASED BOTH MEASURES OF CERTAINTY. THESE RESULTS AND THEIR IMPLICATIONS ARE DISCUSSED FOR THIS AND SUBSEQUENT STUDIES. THIS PAPER WAS PRESENTED TO THE ANNUAL MEETING OF THE AMERICAN EDUCATIONAL RESEARCH ASSOCIATION (CHICAGO, FEBRUARY 8-10, 1968). (HW)

AMERICAN EDUCATIONAL RESEARCH ASSOCIATION
Annual Meeting, February, 1968

Symposium:

Information Variables Affecting Decisions Regarding the Selection of Teachers *

Chairman:

Glenn C. Boerrigter, U. S. Office of Education

Participants:

Situational Factors to be Considered in the Selection Process
Dale Palmer, University of Washington

Personality and Behavioral Characteristics Pertinent to Selection Teachers
Michael Hickey, University of Washington

The Format and Processing of Information in the Selection Process
Donald Bauthues, University of Washington

The Effect of Various Information Formats on Decisions to Select Teachers
Dale L. Bolton, University of Washington

Discussant:

Julian C. Stanley, Johns Hopkins University

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THE EFFECT OF VARIOUS INFORMATION FORMATS ON DECISIONS TO SELECT TEACHERS

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This paper will present the purposes of the study, the variables involved, the experimental design, and the analysis procedures. It will also present some of the major results and implications of these results for practice and additional research.

Purposes and Design of the Study

The general purpose of the research project was to determine the effects of four variables, all related to information format, on teacher selection decisions in relation to the consistency of the decisions, the fineness of the discriminations made, the time needed to make the decisions, and the confidence or certainty that the decision maker had in his decisions. The four independent variables manipulated were: (a) amount of instruction provided in how to process information, (b) number of written documents presented, (c) degree of masking of information, and (d) interview information. The variables involved in the study are shown in the following table:

Table 1
Variables Involved in the Study

Independent Variables		Dependent Variables
Variable	levels	Variable
1. Instruction	a. intruction b. no instruction	1. Time: total time taken
2. Documents	a. multiple b. single	2. Discrimination: by grouping, and by estimated consequences
3. Masking	a. considerable b. partial c. none	3. Certainty: regarding ranking, and regarding estimated consequences
4. Interview	a. audio-visual (filmed) b. audio (tape recorded) c. none	4. Consistency: regarding ranking, and regarding estimated consequences

The four dependent variables were selected because of their potential tangible gains for a school district: (a) time saved on a large number of teacher selection decisions will cumulate to considerable saving to a district;

(b) consistency in estimating outcomes of decisions helps to maximize long-range goals by reducing the discrepancy between estimates and actual outcomes; (c) fine discriminations are needed for making subtle distinctions among teachers where the potential loss due to error is high; (d) uncertainty can lead to indecision and can cause vacillation and wasted motion.*

The independent variables were chosen because of their relationship to the way an administrator might use his time and how information might be processed. The use of a single summary document or partially-masked information (i.e., exceptional data rather than the total data available) might allow clerical help or data processing equipment to transform information into a more useful format and therefore permit the administrator to use his time in actual decision making rather than cumulating and collating information. However, giving the decision maker instructions regarding how to process information might facilitate decisions to the extent that it would nullify the benefits of mechanical or clerical manipulation of information. If the interview information is beneficial, then it must be retained for the purpose of assisting in decision making. If, however, administrators do not benefit from interview information, perhaps the interview should still be retained--but for purposes other than decision making.

The instructional variable was designed to give the subjects information-processing techniques. This was a two-level variable consisting of either instructions or no instructions. The instructions given were concise, and consisted of techniques which were assumed to be integral to effective and efficient information processing. These included: (a) withholding the decision until all information had been considered, (b) scanning information to obtain a general impression, (c) clustering information items according to criteria established by the subject, (d) attending to exceptional information, and (e) consideration of the information in terms of the criteria established by the subject and the decision to be made. A short criterion test was taken by each subject who received instructions.

Because the experiment was conducted in a simulated situation, some of the variables that might ordinarily affect administrative decisions could be controlled (e.g., assignment situation, supervision situation, evaluation procedure, independence of decisions, physical conditions, time of year for the decision, order of presentation of subjects, order of presentation of information regarding applicants, and the motivation of the subjects.)

The subjects used for this study were selected from three counties in the State of Washington. Districts were randomly chosen from these three counties and the first nine were asked to participate. These districts had slightly more than the number of principals needed for the study, and 144 were randomly assigned to the 36 treatments. The design was a completely randomized 2x2x3x3 fixed model treatment arrangement, with measures on all four of the dependent variables.

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*The question of the validity of the decisions, or the "goodness" of the decisions in terms of whether the "correct" teacher was selected was omitted intentionally from this study. It was assumed that local school systems define teacher effectiveness according to specific local criteria; if so, the local system will be able to specify the outcomes desired in terms of teacher behavior.

The general task performed by each subject was to examine eight fictitious applicants for a hypothetical teaching position and make decisions regarding the appropriateness of each applicant for the position. Each subject was asked to: (a) estimate how each applicant would be evaluated on a Teacher Evaluation Instrument at the end of a year of teaching, (b) rank order the eight applicants according to their desirability for the hypothetical situation, (c) make an estimate of the certainty of his judgments regarding the prediction and the rank order by indicating how willing he would be to bet that his judgments were correct, and (d) group the eight applicants according to selected attributes or characteristics.

The above tasks were completed during the morning session of the experiment. For purposes of measuring the consistency of the decisions, a retest was administered in the following manner:

Five of the eight applicants presented in the first session were repeated in the second session. These five applicants were disguised by modifying certain minor data, e. g., age, birthplace, size, etc. Changes in makeup, hairpieces, and clothes altered appearances during the filmed interview. The other three applicants used during the first session were decoys and were replaced by considerably different applicants during the afternoon session. The decoys appeared late in the order of presentation in the first session and early in the second session to aid in forming the impression that the second set was an entirely new set of applicants. It was assumed that the insertion of the decoys did not affect the decisions regarding the five applicants on whom repeated measures were taken.

After subjects had performed the same tasks with the second set of applicants, it was possible to obtain two measures of consistency: (a) a correlation between the first and second ranking of the five real applicants, and (b) a correlation between the first and second estimates of how each applicant would be evaluated on the Teacher Evaluation Instrument.

Two measures of discrimination were computed after completion of the experiment: (a) the average number of groupings on the attributes selected (e.g., if one subject grouped the eight applicants into eight groups on a given attribute and another subject used three groups, then the first subject was considered to have discriminated more finely), and (b) the mean variance of the 16 applicant scores on each item of the Teacher Evaluation Instrument; the greater the variance, the more discriminating the individual; the smaller the variance, the less discriminating.

An analysis of variance for the 2x2x3x3 factorial experiment was completed for the main and interaction effects of the four independent variables. By using the single measure of time, and two measures for each of the other dependent variables, there were seven ANOVAs computed. Tables for each of these analyses are provided in the Appendix.

Results of the Study

The total results of the initial analyses are presented in Table 2. Since each analysis included the same independent variables, the sources of variation are the same for all seven analyses. Table 2 indicates results that were significant at the .05, and the .01 levels.

Table 2
Results of Seven 2x2x3x3 Analyses of Variance for Four Dependent Variables*

	Dependent Variables						
	Time	Discrimination		Certainty		Consistency	
Source of Variation		Grouping	Est. Cons.	Ranking	Est. Cons.	Ranking	Est. Cons.
1: Instruction	.01						
2: Documents	.05		.05				
3: Masking	.01		.05				
4: Interview	.01		.01	.01	.05		
1 x 2	.05		.05				
1 x 3							
1 x 4							.05
2 x 3					.05		
2 x 4							
3 x 4							
1 x 2 x 3							
1 x 2 x 4							
1 x 3 x 4							
2 x 3 x 4							
1 x 2 x 3 x 4			.05				

*Table entries are maximum probabilities

Time

The analysis of variance, using time as a dependent variable, indicated the following results:

1. No instruction required 18 minutes more time than instruction.
2. Multiple documents required 12 minutes more time than single document.
3. No masking required more time than partial masking, which required more time than considerable masking.
4. Audio-visual and audio interview information were not significantly different,* but both took longer than no interview information. A check for linear trend indicated a significant linear trend at the .01 level of significance,** where the levels were in the order of none, audio, and audio-visual.

* A Newman-Keuls test was used for all post analyses of means.

** Orthogonal comparisons were made for all tests for linear trend.

5. The effect of instruction interacted with the effect of documents in the following manner: When no instructions were given, the multiple documents required 25.6 minutes longer; however, when instructions were given, there was no difference in the time required. This interaction is plotted in Appendix B, Figure 1.

Discrimination

Results of the analysis of variance, using the grouping of applicants on various characteristics as a measure of discrimination, yielded no differences for any of the dependent variables. (Two two-way interactions at the .10 level were not considered significant.) However, using the estimate of ratings on the Teacher Evaluation Instrument as a measure of discrimination yielded the following results:

1. Instruction had no effect on this measure of discrimination.
2. The single document produced more discrimination.
3. No masking yielded more discriminating results than partial masking, which yielded more discriminating results than considerable masking.
4. The results of audio-visual and audio interview information were not significantly different, but the results of both were more discriminating than no interview information. A check for linear trend indicated a significant linear trend at the .05 level of significance, where the levels were in the order of none, audio, audio-visual.
5. The effect of instruction interacted with the effect of documents in the following manner: When no instructions were given, the multiple documents were less discriminating than the single documents. The instruction appeared to depress the single documents' discrimination score somewhat and increase the multiple documents' score considerably. Orthogonal comparisons of the means indicated that the only means which were different were the multiple and single documents when no instructions were given. This interaction is plotted in Appendix B, Figure 2.

Certainty

The analysis of variance regarding the certainty of the estimates of consequences on the Teacher Evaluation Instrument yielded the following results:

1. The effects of instruction, documents, and masking were not significant on this measure of certainty. (The difference at the .10 level for instruction was not considered significant.)
2. Audio-visual interview information yielded more certainty than no interview information. A linear trend existed in the order of no information, audio-information, audio-visual information.
3. The effect of the number of documents interacted with the effect of the interview information treatment in the following manner: The audio depressed the certainty scores for the multiple document treatment below that of the single document, while the multiple document treatment exhibited more certainty with the audio-visual and no interview information. This interaction is plotted in Appendix B, Figure 3.

The analysis of variance regarding the certainty of the ranking of applicants for the position yielded the following results:

1. The effect of instruction, documents, and masking was not significant on this measure of certainty.
2. Audio-visual interview information yielded more certainty than either audio information or no interview information. A linear trend existed in the order of no information, audio information, audio-visual information.
3. The effects of the four variables interacted with regard to this measure of certainty.

Consistency

The analysis of variance, using as a measure of consistency the rank order correlations between event one and event two (morning and afternoon sessions) for the ranking of candidates for the position, yielded no differences for any of the independent variables. (One three-way interaction at the .10 level was not considered significant.) The variance within groups was so great on the consistency of rank order of the candidates from morning to afternoon session that differences did not appear. The small number of candidates (n = 5) used in the rank order correlation reduced the possibility of obtaining significant differences; likewise, this may partially account for the large variances in correlation coefficients within cells. However, similar within-cell variances were also noted for correlation coefficients between the two estimates of consequences on the 49 item Teacher Evaluation Instrument. The reason for such high-cell variance appears to be related to the heterogeneous backgrounds of the subjects involved, but further investigation of this phenomenon is warranted.

The analysis of variance, using as a measure of consistency the correlation of the estimates of consequences on the Teacher Evaluation Instrument of event one with event two, yielded the following results:

1. There were no main effects of the independent variables for this measure of consistency.
2. The degree of masking interacted with the document variable in the following manner: The trend was for the single document to be more consistent as the amount of masking moved from considerable to partial to none, while the multiple documents tended to be more consistent as the amount of masking moved from none to partial to considerable. Orthogonal comparisons of means indicated that the single document yielded significantly less consistent results with considerable masking, significantly more consistent results with no masking, and was not different from the multiple documents with partial masking. The interaction is plotted in Appendix B, Figure 4.

Discussion of the Results

Instruction, under these experimental conditions, reduced the amount of time it took to make decisions. Instruction also interacted with documents by reducing the time for multiple documents and by making the subjects' estimates more discriminating on the Teacher Evaluation Instrument. These results appear to warrant the recommendation* that information-processing instructions be given to principals who are engaged in the selection of teachers.

The single document reduced the time it took to make decisions and increased the amount of discrimination in making estimates on the Teacher Evaluation Instrument. However, documents interacted with interview information by depressing the certainty of estimate on the Teacher Evaluation Instrument for the audio interview information obtained by the multiple document treatment. Documents also interacted with the masking information as far as consistency was concerned in estimation on the Teacher Evaluation Instrument. When multiple documents were used the most consistency was obtained with considerable masking; when the single document was used, it yielded the most consistency with no masking. These results appear to be compatible with a general notion that too much information (or information in an unmanageable form) is confusing and precipitates inconsistent responses, while too little information precipitates random behavior.

The degree of masking of information had a main effect of reducing in a linear fashion the time needed to make decisions. However, as indicated in the prior section, masking reduced the consistency of single documents. The degree of masking also decreased in a linear fashion the discriminations made in the estimates of consequences on the Teacher Evaluation Instrument. The results of the effects of masking combined with the results of the effects of the documents variable appear to warrant a recommendation that no masking be used in combination with a single document. This would not take advantage of the saving of time found in masking of information, but it would maintain the consistency that is needed in estimation of consequences and take advantage of the saving of time and increased discrimination caused by the single document.

The linear trend for interview information indicated that additional interview information (moving from no information to audio information to audio-visual information) increased the time needed to make decisions, increased the discrimination on estimation of consequences on the Teacher Evaluation Instrument, and increased both measures of certainty. In only one of these cases (where certainty was measured by the prediction on the Teacher Evaluation Instrument) where a linear trend existed did a difference exist between the results of audio-visual and audio information. In this case, there was also an interaction with the documents variable. Although there was a main

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*Reactions to the experiment solicited from the subjects indicated that they thought their responses in the morning session were different from their responses in the afternoon session. The results are being re-analyzed with this idea in mind and conclusions may be different.

effect of the interview information on certainty of estimates on the Teacher Evaluation Instrument, the interaction of interview information with documents indicated that audio information depressed the certainty scores with multiple documents. The results of the study appear to warrant the following recommendations regarding interview information:

1. Audio-visual interview information should be used in spite of the increased time it takes.
2. Administrators should not hesitate to use audio interview information where it is necessary or expedient (for example, telephone interviews with persons who are considerable distance from the location of employment).
3. Additional investigations should be made of some of the other aspects of the interview information related to the audio treatment, e.g., the degree of the decision maker's involvement in the interview, or conditions which allow maximum concentration on the content of the interview may affect the decisions made.

The results of this study were not concerned with the validity of the decisions. It was assumed that the importance of situational variables necessitates local validation of selection decisions and that this local validation should be done with an optimum information format as far as time, certainty, discrimination, and consistency are concerned. Additional study in the simulated situation should allow us to determine whether subjects will be able to make valid decisions for predetermined and specified criteria with the information format recommended.

Implications

The implications (of the analysis made thus far) of this research project for practice in the selection of teachers are as follows: if principals or personnel directors involved in selection of teachers are of a similar nature to the subjects used in this study, their decisions regarding the selection of teachers will be affected by the format of the information. Further, one would expect that the single format that would yield optimum results as far as time, discrimination, consistency, and certainty are concerned would consist of: instructions regarding the processing of information, a single summary document, no masking of information, and interviews that include visual as well as audio stimuli.

The implications for further research that emerge directly from the results include the following:

1. There is a need to know more about the strength of the instructional variable with other populations and with varying amounts and types of instruction. The main effect of this variabe--as well as the interaction with the documents variable--is gratifying, considering that the total amount of instruction given to the subjects was less

than ten minutes. Will the same effect occur regardless of the experiential background of the subjects? Will it be necessary to give instructions each time the task is performed? Will the instructional effects transfer to other information-processing tasks? All of these questions warrant further study.

2. There is a need to know why the interaction between degree of masking and single documents resulted in reduced consistency. Also, there is a need to know why the masking reduces the discrimination. Are these results due to the fact that not enough information is available to make discriminating and consistent decisions, or is it due to the lack of familiarity of principals with decision processes that emphasize attending to exceptional data? Studies need to be completed that will determine whether additional familiarity with exceptional-information-decision-making procedures yields different results. If so, time might be saved by using some procedure of partial masking.

3. There is a need to know why the nature of the interview information affects differentially the certainty of decisions made with different types of documents. If the certainty measured with the "no interview information, multiple documents" was low in the same manner as the "audio information, multiple documents," a rather simple explanation is available. However, the reduction of certainty with the audio information and the lack of reduction of certainty with the no information is puzzling and needs further investigation.

4. Although the trend of the main effect of the interview information was generally compatible with the amount of the stimuli, the instances where the audio information was not significantly different from the audio-visual information would imply that additional study should be made of a direct comparison of the effect of these two levels on decisions made. Likewise, it would be helpful to know if instruction in specific techniques of observation and listening skills would interact with the audio and audio-visual interview information.

The implications of this research project (but not of the specific results) are considerable in relation to increasing the knowledge of decision-making processes. An optimum information format will allow experiments to be conducted in a simulated situation without fear that the results will be unduly affected by the manner of presenting information to subjects. This experiment, then, was necessary in order to utilize the simulated situation for testing hypotheses regarding certain elements of decision theory. For example, if one wants to describe the decision-making behavior of a particular individual (or a set of individuals), or if one desires to prescribe a manner in which a decision maker might behave more effectively, it is necessary to determine both (a) the manner in which he predicts consequences, or at least what consequences he predicts, and (b) the value system he uses in the final choice. But how can the prediction of consequences be separated from the values attached to them? How does one know, by observing the choice of a particular alternative, whether the choice was made on the basis of a high prediction of consequence and a low value, or the reverse, or both a high prediction of consequence and a high value?

Interest in value systems has led students of decision making to devise descriptive and prescriptive decision-making models. One intent of these models is to assist people in making the consequences they predict and the values attached to them explicit, yet little work has been done to accomplish this intent.

One approach to the description of the decision-making process might be to place subjects in a precisely described choice situation in which the consequences can be accurately determined and known by the subject. For example, a betting situation in which the odds were known--as in coin-flipping, rolling dice, or choosing combinations from a deck of cards--might be used. Subjects could be taught the probabilities of certain consequences occurring, and their values could be inferred from the alternatives chosen, i.e., the types of bets they made. However, such an approach would leave much to be desired, because prediction of consequences would have been controlled, in a sense; therefore, one could only infer that differences in behavior were due to differences in value systems rather than the way consequences were predicted. Inability to determine concommitantly the subject's manner of predicting consequences and his value system is a limitation in this situation; such a limitation might elicit behavior considerably different from behavior in a less restricted decision situation.

An approach from which broader generalizations might be made is one in which the situation is described, but the decision maker must make choices on the basis of <u>his own</u> prediction of consequences and attachment of values to these consequences. An example is the simulated teacher selection situation described in this set of papers. In this decision situation, subjects are not taught probabilities of consequences of choosing certain teacher applicants but must make estimates of what will occur if each teacher is hired. In addition, they must make choices among the teachers. The estimates of what will occur when a teacher is hired become the subject's explicit expression of probable consequences, and the value system of the subject is implied by this expression and his choices among teachers.

The materials used to simulate the decision-making process for selecting teachers, then, provide a setting whereby descriptive and prescriptive theories of decision making may be tested. In addition, other variables that have been controlled in this experiment--especially those dealing with situational factors and interview information--can be manipulated in future experiments to determine their contribution to decision making. The results of this project, in addition to providing some recommendations for the practices of selecting teachers, make possible the control of a very important variable (<u>viz</u>., the format of information) in future studies of the decision-making process.

APPENDIX A. SEVEN ANALYSES OF VARIANCE USING INSTRUCTION, DOCUMENTS, MASKING AND INTERVIEW INFORMATION AS INDEPENDENT VARIABLES

A1. An Analysis of Variance Showing the Effect on Time.

Source of Variation	d.f.	Sums of Squares	Mean Squares	F
1. Instruction	1	11826.6	11826.6	8.975 **
2. Documents	1	5244.2	5244.2	3.98 *
3. Masking	2	13828.5	6914.3	5.25 **
4. Interview Information	2	116784.3	58392.1	44.3 **
1 x 2	1	6601.6	6601.6	5.01 *
1 x 3	2	531.1	265.6	--
1 x 4	2	2273.4	1136.7	--
2 x 3	2	2681.7	1340.8	1.02
2 x 4	2	2387.1	1193.5	--
3 x 4	4	5852.3	1463.1	1.11
1 x 2 x 3	2	1724.6	862.3	--
1 x 2 x 4	2	487.5	243.8	--
1 x 3 x 4	4	775.0	193.8	--
2 x 3 x 4	4	1334.4	333.6	--
1 x 2 x 3 x 4	4	3239.5	809.9	--
Within Cells (Error)	108	142317.3	1317.8	
Total	143	317888.9		

* $p \leq .05$
** $p \leq .01$

A2. An Analysis of Variance Showing Effect on Discrimination, as Measured by Number of Groupings.

Source of Variation	d.f.	Sums of Squares	Mean Squares	F
1. Instruction	1	21.0	21.0	--
2. Documents	1	0.2	0.2	--
3. Masking	2	1.8	0.9	--
4. Interview Information	2	40.0	20.0	--
1 x 2	1	85.6	85.6	3.616
1 x 3	2	37.5	18.8	--
1 x 4	2	143.0	71.5	3.022
2 x 3	2	37.7	18.8	--
2 x 4	2	12.1	6.0	--
3 x 2	4	95.4	23.9	--
1 x 2 x 3	2	52.5	26.3	--
1 x 2 x 4	2	53.0	26.5	--
1 x 3 x 4	4	55.0	13.8	--
2 x 3 x 4	4	41.9	10.5	--
1 x 2 x 3 x 4	4	108.7	27.2	--
Within Cells (Error)	108	2555.3	23.7	
Total	143	3340.7		

A3. An Analysis of Variance Showing Effect on Discrimination, as Measured by Variance of Estimates of Consequences on the Teacher Evaluation Instrument

Source of Variation	d.f.	Sums of Squares	Mean Squares	F
1. Instruction	1	0.09	0.09	--
2. Documents	1	0.77	0.77	4.06*
3. Masking	2	1.55	0.78	4.09*
4. Interview Information	2	1.94	0.97	5.10**
1 x 2	1	1.02	1.02	5.37*
1 x 3	2	0.25	0.13	--
1 x 4	2	0.38	0.19	--
2 x 3	2	0.05	0.03	--
2 x 4	2	0.71	0.36	--
3 x 4	4	0.98	0.24	--
1 x 2 x 3	2	0.13	0.07	--
1 x 2 x 4	2	0.17	0.09	--
1 x 3 x 4	4	0.69	0.17	--
2 x 3 x 4	4	1.05	0.26	--
1 x 2 x 3 x 4	4	0.44	0.11	--
Within Cells (Error)	108	20.53	0.19	
Total	143	30.77		

* $p \leq .05$
** $p \leq .01$

A4. An Analysis of Variance Showing Effect on Certainty of Estimates of Consequences on the Teacher Evaluation Instrument

Source of Variation	d.f.	Sums of Squares	Mean Squares	
1. Instruction	1	10.56	10.56	3.66
2. Documents	1	2.51	2.51	--
3. Masking	2	2.26	1.13	--
4. Interview Information	2	24.01	12.01	4.16*
1 x 2	1	0.34	0.34	--
1 x 3	2	8.38	4.19	--
1 x 4	2	13.54	6.77	--
2 x 3	2	2.51	1.26	--
2 x 4	2	23.35	11.67	4.04*
3 x 4	4	19.44	4.86	--
1 x 2 x 3	2	3.18	1.59	--
1 x 2 x 4	2	6.76	3.38	--
1 x 3 x 4	4	16.08	4.02	--
1 x 3 x 4	4	8.19	2.05	--
1 x 2 x 3 x 4	4	5.28	1.32	--
Within Cells (Error)	108	311.75	2.89	
Total	143	458.16		

* $p \leq .05$
** $p \leq .01$

A5. An Analysis of Variance Showing Effect on Certainty of Ranking of Applicants

Source of Variation	d.f.	Sums of Squares	Mean Squares	F
1. Instruction	1	1.36	1.36	--
2. Documents	1	0.00	0.00	--
3. Masking	2	2.26	1.13	--
4. Interview Information	2	4 .06	24.53	6.02**
1 x 2	1	2.78	2.78	--
1 x 3	2	5.01	2.51	--
1 x 4	2	14.39	7.19	--
2 x 3	2	2.63	1.31	--
2 x 4	2	7.17	3.5	--
3 x 4	4	19.69	4.92	--
1 x 2 x 3	2	3.93	1.97	--
1 x 2 x 4	2	5.72	2.86	--
1 x 3 x 4	4	31.86	7.97	--
2 x 3 x 4	4	18.33	4.58	--
1 x 2 x 3 x 4	4	52.44	13.11	3.218*
Within Cells (Error)	108	440.00	4.07	
Total	143	656.64		

* $p \leq .05$
** $p \leq .01$

A6. An Analysis of Variance Showing Effect on Consistency of Ranking of Applicants

Source of Variation	d.f.	Sums of Squares	Mean Squares	F
1. Instruction	1	0.00	0.00	--
2. Documents	1	0.02	0.02	--
3. Masking	2	0.88	0.44	--
4. Interview Information	2	0.98	0.49	--
1 x 2	1	0.07	0.07	--
1 x 3	2	0.22	0.11	--
1 x 4	2	0.48	0.24	--
2 x 3	2	0.13	0.07	--
2 x 4	2	0.85	0.42	--
3 x 4	4	0.08	0.02	--
1 x 2 x 3	2	1.92	0.96	--
1 x 2 x 4	2	0.36	0.18	--
1 x 3 x 4	4	2.23	0.56	--
2 x 3 x 4	4	0.58	0.14	--
1 x 2 x 3 x 4	4	0.53	0.13	--
Within Cells (Error)	108	38.78	0.36	--
Total	143	48.10		

A7. An Analysis of Variance Showing Effect on Consistency of Estimating Consequences on The Teacher Evaluation Instrument

Source of Variation	d.f.	Sums of Squares	Mean Squares	F
1. Instruction	1	0.05	0.05	--
2. Documents	1	0.03	0.03	--
3. Masking	2	0.11	0.05	--
4. Interview Information	2	0.11	0.05	--
1 x 2	1	0.01	0.01	--
1 x 3	2	0.07	0.04	--
1 x 4	2	0.18	0.09	--
2 x 3	2	0.50	0.25	4.18*
2 x 4	2	0.02	0.01	--
3 x 4	4	0.45	0.11	--
1 x 2 x 3	2	0.18	0.09	--
1 x 2 x 4	2	0.11	0.05	--
1 x 3 x 4	4	0.23	0.06	--
2 x 3 x 4	4	0.36	0.09	--
1 x 2 x 3 x 4	4	0.07	0.02	--
Within Cells (Error)	108	6.41	0.06	
Total	143	8.87		

* p _ .05
** p _ .01

APPENDIX B.

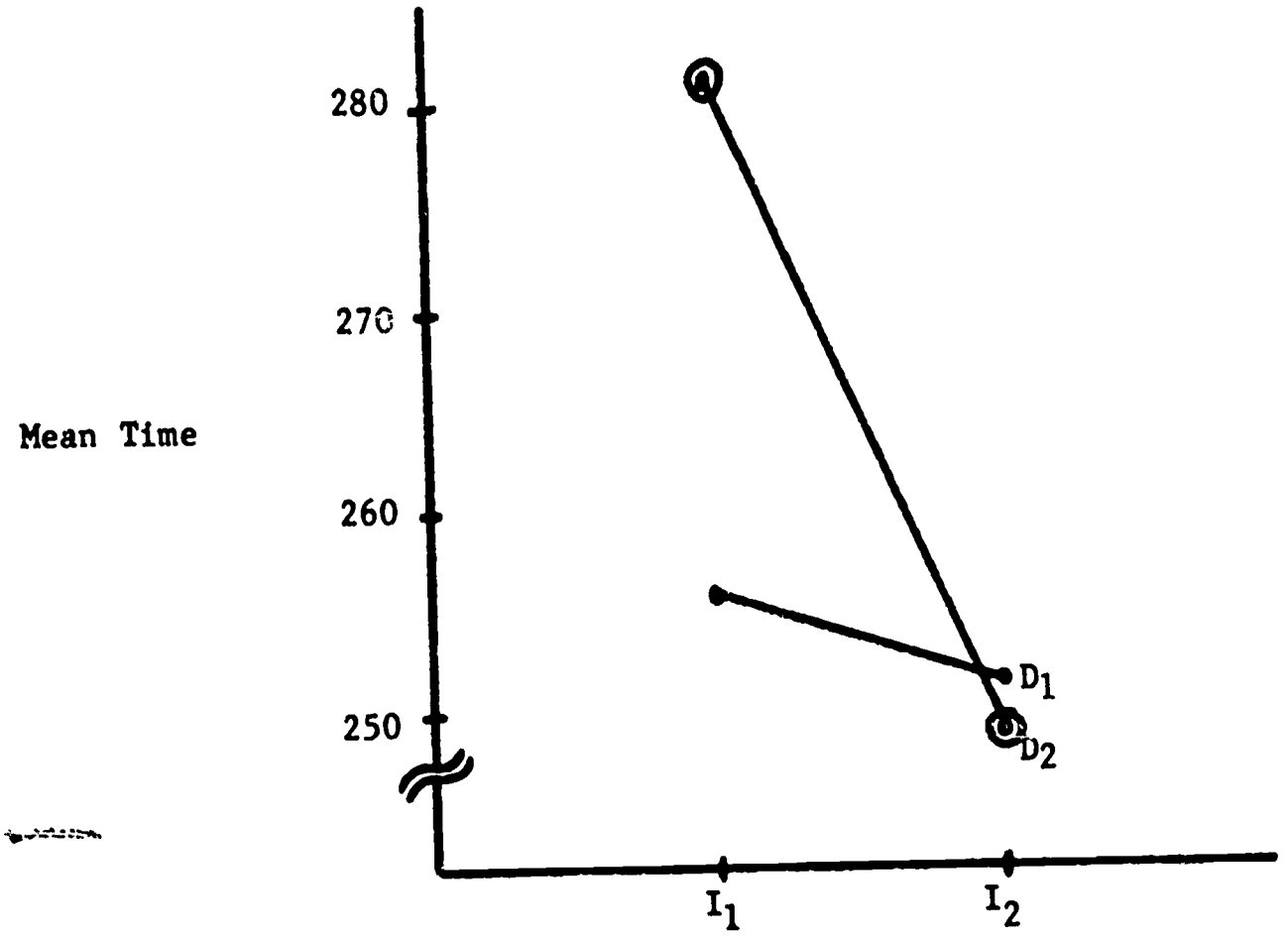

Figure 1. The Interaction Effect of Instruction (I) and Documents (D) on Time.

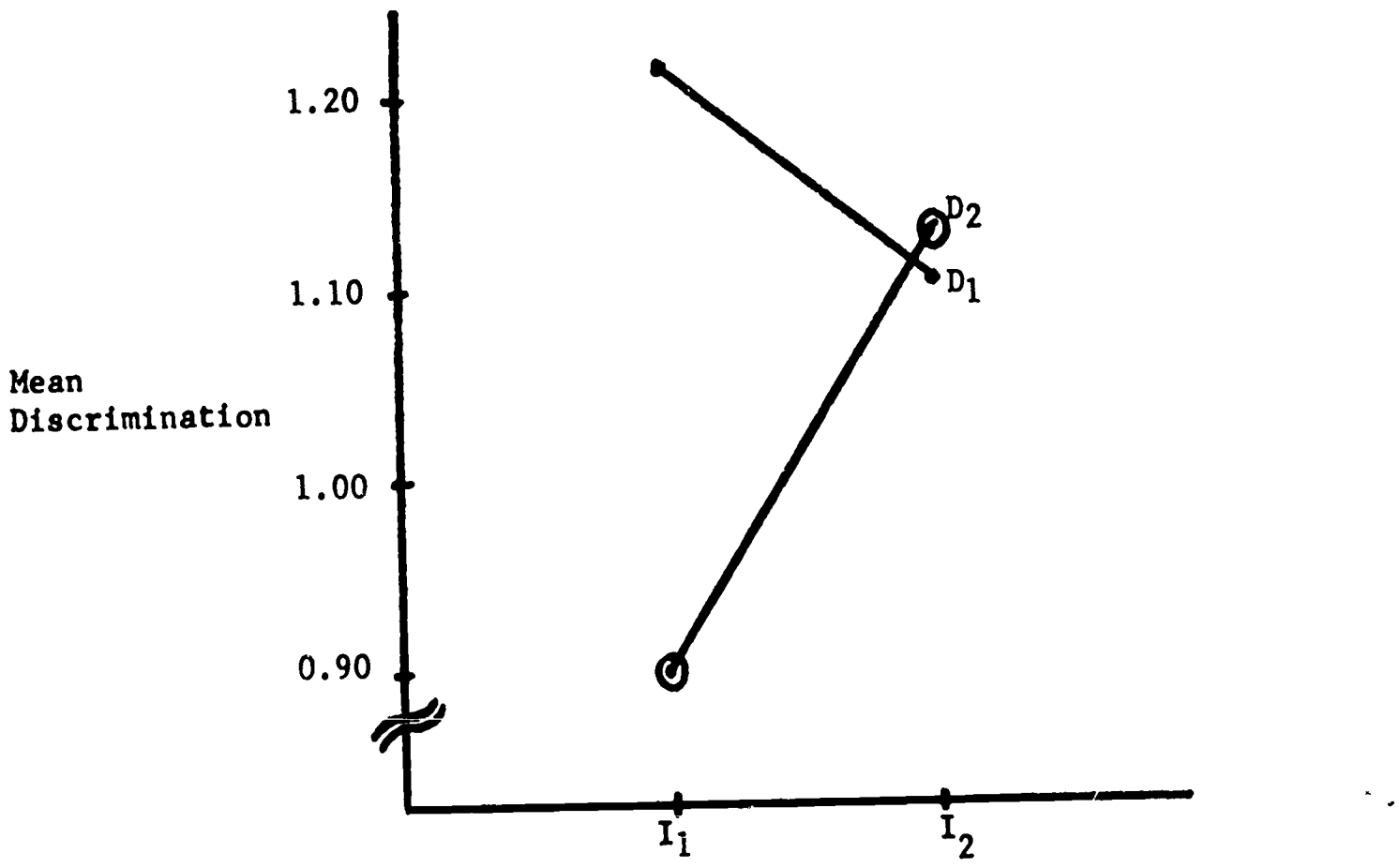

Figure 2. The Interaction Effect of Instruction (I) and Documents (D) on Discrimination, as measured by Variance of Estimates on the Teacher Evaluation Instrument.

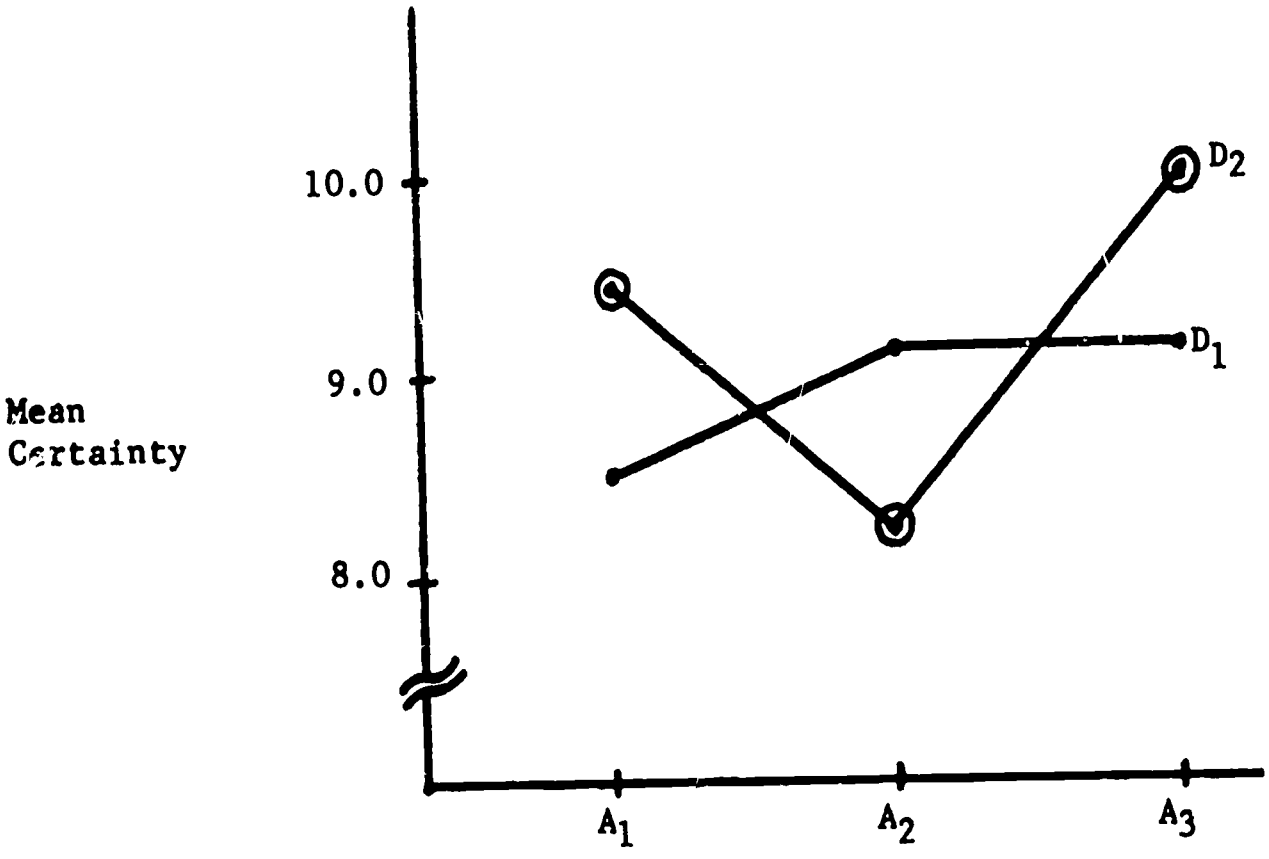

Figure 3. The Interaction Effect of Interview Information (A) and Documents (D) on Certainty of Estimates on The Teacher Evaluation Instrument.

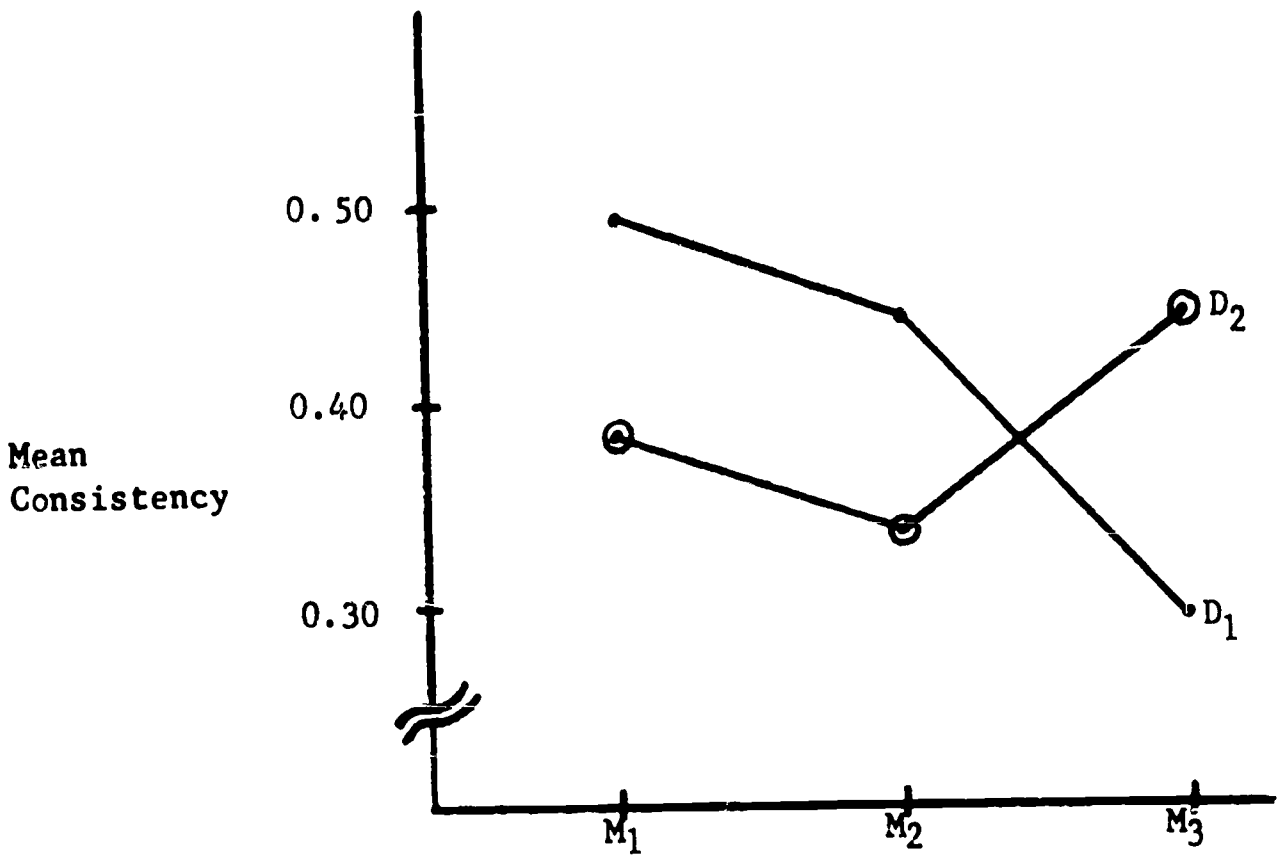

Figure 4. The Interaction Effect of Masking (M) and Documents (D) on Consistency of Estimates on The Teacher Evaluation Instrument.